

**METHODS AND APPARATUS FOR DEPOSITING  
A THIN FILM ON A SUBSTRATE**

**Abstract**

An apparatus for depositing a thin film includes a reaction chamber, a reaction gas provider to supply a reaction gas and/or inert gas to the reaction chamber, an oxidant provider to supply a first oxidant and a second oxidant to the reaction chamber, and an air drain to exhaust gas from the apparatus. The oxidant provider is operable to supply the second oxidant to the reaction chamber using the first oxidant as a transfer gas.

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